



Flight Opportunities

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Greetings from Flight Opportunities

In this month's newsletter, we are pleased to share:

- Recent flights for payloads from Draper and NASA's Ames Research Center
- Planning for NASA's next Tech Flights solicitation
- Recent news from our spaceflight community
- Looking back at NASA's Apollo 50th anniversary celebration
- Upcoming conferences and events

Enjoy!

The Flight Opportunities team

Recent Flights

Raven Aerostar Completes First Flight for a Flight Opportunities-Supported Payload



Raven Aerostar conducted its first flight for the program in the early morning hours of August 29 above Sioux Falls, South Dakota. Flying on the balloon was a sample return device from NASA's Ames Research Center. Credit: Raven Aerostar

Raven Aerostar, the newest contracted **flight provider** for Flight Opportunities, conducted its first flight of a program-supported payload in the early morning hours of August 29 above Sioux Falls, South Dakota. Flying on Raven's high-altitude balloon was the **exo-atmospheric aerobrake** from NASA's Ames Research Center. The device provides passive re-entry/de-orbit to facilitate quick sample return from the International Space Station and potentially other future orbital outposts (e.g., Mars). The flight test aimed to determine how the device might transition from de-orbit to subsonic mode. For this balloon flight, the forebody of the device was a tube deployed re-entry vehicle, also from Ames.

Raven's Cyclone zero-pressure balloon system launched successfully at 6 a.m. PDT and reached a float altitude of 98,000 feet. A gondola along with the aerobrake payload was released just after 8 a.m. and landed about 40 minutes later. A small aircraft provided by Raven enabled location and recovery of the payload the following day. Researchers are currently analyzing data from the successful flight.

Marcus Murbach, principle investigator for the BEST-1 payload (Balloon Experiments for Smallsat Technology) and the exo-atmospheric aerobrake system, noted the professionalism and preparation of the Raven and Flight Opportunities teams in saying, "All of the staff of the Raven Aerostar organization were exemplary, as was the general guidance and development of the payload system."

Draper Navigation System Tested on Xodiac



In the early morning hours of September 11, a Draper Terrain Relative Navigation (TRN) system was tested on a **successful flight** of Masten Space System's Xodiac rocket in Mojave, California. The flight was made possible with support from Flight Opportunities as well as NASA's Game Changing Development program. Data from the flight is being analyzed. Read more about the flight and the TRN technology, which could be the "eyes" for a future lunar lander, in the **NASA web feature**.

Image credit: Masten Space Systems

Prepare Now For the Next Tech Flights Solicitation

Are you new to the Flight Opportunities community? If so, now is a great time to [get in touch](#) with us to discuss NASA's upcoming [Tech Flights solicitation](#). While an official date for the solicitation has not been announced, we encourage prospective proposers to plan well in advance of the due date.

[Awardees](#) receive a grant or enter into a cost-share agreement, through which they can select a [commercial flight provider](#) that meets their needs for demonstrating a promising space-based payload.

The Tech Flights solicitation is open to U.S.-based non-government organizations (e.g., academia, research institutes, private sector) and Federally Funded Research and Development Centers (with the exception of NASA's Jet Propulsion Laboratory), as well as non-U.S. researchers partnering with a U.S.-based entity as the lead.

[Get in touch now](#) to discuss eligibility, proposal criteria, the proposal review process, and any other questions you may have about applying for a tech flight for your payload. You can also review previous presentations about the solicitation and other [resources on our website](#).

News & Events

Flight Opportunities-Supported PI Receives Prestigious NASA Honor

Franklin Robinson, principal investigator for the [Flight Opportunities-supported Flow Boiling in Microgap Coolers experiment](#) from NASA's Goddard Space Flight Center, received the agency's Exceptional Technology Achievement Medal at last week's 2019 Agency Honor Awards ceremony. The Flight Opportunities team extends their enthusiastic congratulations to our colleague in receiving this well-deserved honor for excellence in technology maturation.

"Many thanks to the entire Flight Opportunities Program for your support in advancing the Flow Boiling in Microgap Coolers technology. The two flights of this technology aboard Blue Origin's New Shepard have been instrumental in advancing the technology readiness level and improving the visibility of this work within the NASA community. I am confident when I say that I would not have received this medal without the support of Flight Opportunities."

— Franklin L. Robinson, Thermal Engineer, NASA's Goddard Space Flight Center

News For the Spaceflight Community

On July 30, NASA announced new [Announcement of Collaborative Opportunity awards to advance Moon and Mars technology](#).

NASA [engages with the university community for new technology instrument ideas to study the lunar surface](#). Notice of intent due September 27, 2019.

NASA announces [Smallsat Technology Partnerships Solicitation](#). Notice of intent due October 4, 2019.

Looking Back at NASA's Apollo 11 50th Anniversary Celebration



In July, Flight Opportunities attended NASA's 50th anniversary celebration for the historic Apollo 11 moon landing in Washington, D.C. From NASA's multimedia projection on the Washington Monument to the NASA Technology booth and others, the event was an inspiring highlight of past, present and future innovations that will help take us back to the moon and beyond.

Mark Your Calendar

We welcome the opportunity to meet with our community at the events and conferences we attend throughout the year. Several opportunities to do so are coming up:

We'll be attending [ISPCS 2019](#), the annual meeting of the International Symposium for Personal and Commercial Spaceflight. Flight Opportunities Program Manager John Kelly will speak on a panel discussing suborbital markets for humans and technology payloads. We'll also have a booth, so please drop by so we can meet you, or [get in touch](#) to let us know you will be there.

October 9-10
Las Cruces, NM

We'll also be attending the **Innovation and Opportunity Conference**. **Drop us a line** if you'd like to arrange a time to meet.

November 14-15

Aurora, CO

Finally, expect to see us at the **2019 meeting of the American Society for Gravitational and Space Research (ASGSR)**. We'll have a booth at this event and would be happy to meet. **Get in touch** to let us know if you plan to be there.

November 20-23

Denver, CO

Other Upcoming Events:

- **70th International Astronautical Congress** – Oct. 21-25, Washington, D.C.
- **Space Commerce Conference and Exhibition (SpaceCom)** – Nov. 20-21, Houston, TX

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Have ideas or feedback for the Flight Opportunities newsletter?

Drop us a line at:

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STAY CONNECTED:



NASA Flight Opportunities Program

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Flight Opportunities is part of NASA's Space Technology Mission Directorate.